Complete Summary

GUIDELINE TITLE

Multiple sclerosis. National clinical guideline for diagnosis and management in primary and secondary care.

BIBLIOGRAPHIC SOURCE(S)

National Collaborating Centre for Chronic Conditions. Multiple sclerosis. National clinical guideline for diagnosis and management in primary and secondary care. London (UK): National Institute for Clinical Excellence (NICE); 2004. 197 p. [468 references]

GUIDELINE STATUS

This is the current release of the guideline.

** REGULATORY ALERT **

FDA WARNING/REGULATORY ALERT

Note from the National Guideline Clearinghouse: This guideline references a drug(s) for which important revised regulatory and/or warning information has been released.

- On July 8, 2005, the U.S. Food and Drug Administration (FDA) notified healthcare professionals of updated labeling for Cialis, Levitra and Viagra to reflect a small number of post-marketing reports of sudden vision loss, attributed to NAION (non arteritic ischemic optic neuropathy), a condition where blood flow is blocked to the optic nerve. FDA advises patients to stop taking these medicines, and call a doctor or healthcare provider right away if they experience sudden or decreased vision loss in one or both eyes. Patients taking or considering taking these products should inform their health care professionals if they have ever had severe loss of vision, which might reflect a prior episode of NAION. Such patients are at an increased risk of developing NAION again. At this time, it is not possible to determine whether these oral medicines for erectile dysfunction were the cause of the loss of eyesight or whether the problem is related to other factors such as high blood pressure or diabetes, or to a combination of these problems. See the FDA Web site for more information.
- On May 24, 2005, Serono and the U.S. Food and Drug Administration (FDA) notified healthcare professionals of revisions to the BOXED WARNING, WARNINGS, and DOSAGE AND ADMINISTRATION sections of the prescribing information for Novantrone [mitoxantrone], indicated for treatment of multiple sclerosis (MS). The Dear Healthcare Professional letter provides additional information concerning the risks of cardiotoxicity associated with

Novantrone and also provides supplemental information regarding secondary acute myelogenous leukemia (AML) reported in MS patients treated with Novantrone. See the FDA Web site for more information.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Multiple sclerosis (MS)

GUIDELINE CATEGORY

Counseling
Diagnosis
Evaluation
Management

CLINICAL SPECIALTY

Family Practice
Internal Medicine
Neurology
Nursing
Ophthalmology
Physical Medicine and Rehabilitation
Podiatry
Psychiatry
Psychology
Speech-Language Pathology

INTENDED USERS

Dietitians
Health Care Providers
Hospitals
Nurses

Occupational Therapists
Patients
Physical Therapists
Physicians
Podiatrists
Psychologists/Non-physician Behavioral Health Clinicians
Public Health Departments
Social Workers
Speech-Language Pathologists

GUIDELINE OBJECTIVE(S)

- To serve as a guideline for the National Health Service (NHS) in England and Wales
- To ensure that people with multiple sclerosis benefit from a coherent and consistent response from services, to minimise their problems as far as can be achieved
- To help health care professionals provide optimal services for those with multiple sclerosis by:
    - Providing individual clinicians with a set of explicit statements on the best way to manage most common clinical problems to maximise the effectiveness of the service
    - Providing commissioning organisations and provider services with specific guidance on the best way to organise complex services, to maximise efficiency and equity

TARGET POPULATION

Adults of all ages with multiple sclerosis

INTERVENTIONS AND PRACTICES CONSIDERED

General Management Principles

1. Effective communication
2. Offering emotional support
3. Encouragement of autonomy/self-management
4. Offering support to family and carers
5. Multiple sclerosis-specific assessment and measurement
6. Team approach to rehabilitation and goal-setting that covers both short-term specific actions and longer-term outcomes
7. Involvement of specialist services (particularly neurological services, but also dietetics, liaison psychiatry, continence advisory and management services, pain management services, chiropody and podiatry, and ophthalmology services).
8. Ensuring timeliness of all interventions

Diagnosis

1. History
2. Physical examination

3. Radiologic/Laboratory tests as appropriate, including:
    - Magnetic resonance scan
    - Analysis of cerebrospinal fluid
    - Computed tomography brain scan
4. Use of McDonald Criteria (see Appendix G in original guideline document)

Treatment of Acute Episodes

1. High-dose corticosteroids (e.g. oral or intravenous methylprednisolone)
2. Patient education and supportive services (e.g. equipment, personal care)
3. Referral to neurological rehabilitation
4. Interventions affecting disease progression:
    - Interferon beta
    - Glatiramer acetate
    - Linoleic acid
5. The following treatments should not be used except in specific circumstances:
    - Azathioprine
    - Mitoxantrone
    - Intravenous immunoglobulin
    - Plasma exchange
    - Intermittent (4-monthly) short (1-9 days) courses of high-dose methylprednisolone
6. The following treatments should not be used:
    - Cyclophosphamide
    - Anti-viral (for example, acyclovir, tuberculin)
    - Cladribine
    - Long-term treatment with corticosteroids
    - Hyperbaric oxygen
    - Linomide
    - Whole-body irradiation
    - Myelin basic protein (any type)
7. Altering risk of relapse
    - Immunisation against influenza

8. Offering advice/support concerning pregnancy and stress, including surgical stress and anesthesia

Rehabilitation and Maintenance of Functional Activities

1. Identifying and treating any treatable underlying impairments
2. Patient/Carer(s) education/training regarding mobility, activities of daily living, assistive equipment, adaptations, services available
3. Altering environment as needed
4. Physiotherapy treatments

Management of Specific Impairments

See the "Major Recommendations" section of this summary for a complete discussion of interventions recommended for fatigue, bladder dysfunction, urinary tract infections, bowel problems, weakness and cardiorespiratory fitness, spasticity, spasms and joint contractures, ataxia and tremor, sensory losses, visual problems, pain, cognitive losses, emotionalism, depression, anxiety,

swallowing difficulties, speech difficulties, sexual dysfunction, pressure ulcers, and other treatments including complementary therapies.

MAJOR OUTCOMES CONSIDERED

- Disease symptoms
- Activities of daily living
- Relapse rate
- Disease progression
- Sensitivity and specificity of diagnostic tests
- Diagnostic accuracy
- Magnetic resonance imaging outcomes
- Incidence of side effects
- Quality of life
- Patient and carer costs
- Cost-effectiveness

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Searching for the Evidence

There were three stages to this process.

1. First, the technical team set out a series of specific clinical questions that covered the issues identified by the project scope. The Consensus/Reference Group met to discuss, refine, and approve these questions as suitable for identifying appropriate evidence within the published literature.
2. The information scientist then developed a search strategy to identify the evidence for each question. Identified titles and abstracts were reviewed for relevance to the agreed clinical questions and full papers obtained as appropriate. Full papers were assessed for inclusion according to predefined criteria (Appendix C of the original guideline document).
3. Finally, the full papers were critically appraised and the relevant data entered into evidence tables which could be reviewed and analysed by the Guideline Development Group (GDG) as the basis upon which to evaluate recommendations.

Limited details of the searches with regard to databases and constraints applied can be found below and in Appendix C of the original guideline document. Grey literature was searched for using the System for Information on Grey Literature in Europe (SIGLE) database. Stakeholder evidence identified via the National Institute for Clinical Excellence process was incorporated where appropriate.

Databases Searched

Database (Date range searched)

- Cochrane Library (Pre Sept 2002)
- DARE (Pre Sept 2002)
- DARE (admin database) (Pre Sept 2002)
- Current Controlled Trials (Pre Sept 2002)
- National Research Register (Pre Sept 2002)
- Clinical Trials (Pre Sept 2002)
- Inside Conferences (1993 to September 2002)
- SIGLE (1976 to September 2002)
- Medline (1966 to September 2002)
- Embase (1980 to September 2002)
- Cinahl (1982 to September 2002)
- PsycINFO (1887 to September 2002)
- AMED (1985 to September 2002)

In some sections systematic searches were not undertaken because the issue under consideration was not multiple sclerosis specific. Non-systematically retrieved supporting information for these sections is presented.

Evidence on cost-effectiveness was extracted from the main searches wherever it existed; this was rare but was necessary to undertake a separate search for information on the potential costs and benefits of the interventions and management strategies considered in this guideline. This search was carried out by the information resources section in the School for Health and Related Research at the University of Sheffield and was designed in collaboration with the health economist. The GDG realised that few formal cost effectiveness analyses would be identified; therefore the search for economic evidence was very broad and designed to identify information about the resources used in providing a service or intervention and/or the benefits that can be attributed to it. No study design criteria were imposed a priori (i.e., the searches were not limited to randomised controlled trials [RCTs] or formal economic evaluations). Further details of the searches for economic evidence are given in Appendix D of the original guideline document.

Inclusion Criteria

Studies identified by the searches were screened for relevance. Papers considered to be potentially relevant were ordered and screened for inclusion. Due to time constraints studies were assessed for relevance and inclusion by one reviewer only. Where any difficulties were encountered these were resolved by discussion between the two reviewers working on the project. All papers were assessed for inclusion using the same form and the reviewer made the decision on whether to include the study based on the criteria listed in Appendix C of the original guideline document.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Hierarchy of Evidence

Levels of Evidence

Ia: Evidence from systematic reviews or meta-analysis of randomised controlled trials

Ib: Evidence from at least one randomised controlled trial

IIa: Evidence from at least one controlled study without randomisation

IIb: Evidence from at least one other type of quasi-experimental study

III: Evidence from nonexperimental descriptive studies, such as comparative studies, correlation studies, and case-control studies

IV: Evidence from expert committee reports or opinions and/or clinical experience of respected authorities

The guideline development group also identifies evidence from the National Institute for Clinical Excellence (NICE) guidelines or Health Technology Appraisal programme and evidence from Health Service Circulars (HSC) as follows:

NICE: Evidence from NICE guidelines or Health Technology Appraisal programme

HSC: Evidence from Health Service Circulars

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Synthesising the Evidence

Each paper was assessed for its methodological quality against predefined criteria (based upon Centre for Reviews and Dissemination report 4 for randomised controlled trials (RCTs) and systematic reviews and the QUADAS tool for diagnostic accuracy studies [full details are available from the guideline developer on request]).

Papers that met the inclusion criteria were then assigned a level according to Table 1 in the original guideline document (also see the "Rating Scheme for the Strength of the Evidence" Field in this summary).

The clinical question dictated the appropriate study design that should be sought and the level was then assigned. RCTs were the most appropriate study design for a number of clinical questions and RCTs lend themselves particularly well to research into medicines. However, they were not the most appropriate study design for some other questions, particularly in the area of rehabilitation, where interventions are often tailored to the needs of the individual. The result is that evidence on pharmaceutical interventions tended to receive higher levels than for other equally valid interventions. This should not be interpreted as a preference for a particular type of intervention or as a reflection on the quality of the evidence for questions where non-RCT evidence is valid and appropriate.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus (Nominal Group Technique)

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Two multiprofessional groups, supported by a technical team from the National Collaborating Centre for Chronic Conditions (NCC-CC), were involved in the development of the guideline:

- A small Guideline Development Group (GDG) that met monthly and undertook the detailed evidence assessment and recommendation drafting
- An enlarged group, the Consensus/Reference Group (CRG), which met early in the development to ensure the clinical questions and aims were appropriate. At the end of the process, the CRG met again to review the recommendations drafted by the GDG and to consider clinically important areas where there was insufficient evidence, and where formal consensus techniques were required to develop recommendations.

Membership details can be found on page iii of the original guideline document.

The scope for this guideline (see Appendix J of the original guideline document) was developed utilising the National Institute for Clinical Excellence (NICE) stakeholder consultation process.

Involvement of People with Multiple Sclerosis (MS)

The NCC-CC was keen to ensure that the guideline development process was informed by the views of people with MS and their carers. This was achieved in two ways:

- By securing patient organisation representation on the guideline development groups
- By carrying out focus groups and interviews to ensure that the views of people directly affected by MS informed the guideline development process

The Multiple Sclerosis Society and the Multiple Sclerosis Trust had a representative each on the development groups. They were therefore involved at

every stage of the guideline development process and were able to consult with their wider constituencies throughout the process.

Before the first meetings of the development groups, focus groups were held to identify issues that people with MS consider important when describing the impact of MS on their lives. The study had three stages:

- Focus groups with people with MS (one for people with mild to moderate MS and one for people with moderate to severe MS)
- Focus group with carers of people with MS (one group)
- One-to-one interviews with people with severe MS who were fully dependent.

The patient organisation representatives helped to recruit people with MS to participate in each of the groups. Trained facilitators from the NICE Patient Involvement Unit based at the College of Health ran the groups and interviews.

Further information about this study can be found in a separate document (to be issued later). A summary of the key findings from the study and how these have informed the guideline recommendations can be found in Appendix B of the original guideline document.

Drafting the Recommendations

Evidence for each topic was extracted into tables and summarised in graded evidence statements. The clinical advisor used this evidence to draft recommendations that were provided to the group prior to the meetings. The GDG reviewed the recommendations and their grading at their meetings and reached a group opinion. Recommendations were explicitly linked to the evidence that supports them and then graded according to the level of the evidence upon which they were based. Although the grade given to a recommendation reflects the level of evidence on which it is based, it does not necessarily reflect the importance attached to the recommendation. Furthermore, the level of evidence is based on a single hierarchy of research design, but in reality different designs are appropriate for different types of research problem. Specifically in research into rehabilitation and research involving people with long-term conditions, other designs and methodology such as single case studies, quasi-experimental designs, qualitative studies and correlational studies based on prospective observational cohorts will often be stronger than randomised controlled studies. Consequently many of the recommendations that received a grade D were nonetheless those that the GDG felt were the most important.

Agreeing the Recommendations

A one-day meeting of the CRG was held after the evidence review had been completed and when an early draft of the guideline produced by the GDG was available. The CRG considered the draft guideline in two stages using a Rand modified nominal group technique, first via a pre-meeting vote and again in a formal meeting:

1. Are the evidence-based statements acceptable and is the evidence cited sufficient to justify the grading attached?

2. Are the recommendations derived from the evidence justified and are they sufficiently practical so that those at the clinical front line can implement them prospectively? There were three types of recommendation to be considered:
    - A recommendation from the GDG based on strong evidence -- usually non-controversial unless there was important evidence that had been missed or misinterpreted.
    - A recommendation that was based on good evidence but where it was necessary to extrapolate the findings to make it useful in the NHS -- the extrapolation approved by consensus.
    - Recommendations for which no evidence exists but which address important aspects of multiple sclerosis care or management -- and for which a consensus on best practice could be reached.

The formal consensus methods that have been established within NCC-CC, drawing on the knowledge set out in the health technology appraisal, and practical experience. It made full use of electronic communication and voting techniques and will be fully described in separate publications.

Writing the Guideline

The guideline was drawn up by the technical team in accordance with the decisions of the guideline development groups.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Recommendation Grades

Grade A - Directly based on category I evidence

Grade B - Directly based on category II evidence, or extrapolated recommendation from category I evidence

Grade C - Directly based on category III evidence, or extrapolated recommendation from category I or II evidence

Grade D - Directly based on category IV evidence, or extrapolated recommendation from category I, II or III evidence

COST ANALYSIS

Identified titles and abstracts from the economics searches were reviewed by the health economist, and full papers obtained as appropriate. The health economist critically appraised the full papers and the relevant data was conveyed to the group alongside the clinical evidence for each question. Given that the economics searches were so broad and that no standard measure of assessing the quality of economic evidence is available, careful consideration was given to each study design and the applicability of the results to the guideline context.

A further important aim of the economics searches was to identify the key gaps in evidence on potential costs and benefits; hence the titles and abstracts were

mapped to the clinical questions at an early stage, so that the Guideline Development Group (GDG) could decide which areas to prioritise for further work (see below).

The mapping exercise, based on the titles and abstracts identified in the broad search for economic evidence, confirmed that very little information on cost effectiveness was available; of the 464 papers identified there were only nine economic evaluations based on randomised controlled trials. In general the economic information came from studies that considered either costs or outcomes but not both. In addition the majority of studies did not investigate specific interventions or services, but rather considered the overall cost of multiple sclerosis (MS) to society and/or the individual with the condition, or they dealt with measuring quality of life in general in MS. This evidence could only be of limited use in informing the recommendations.

The health economics input was therefore distinguished according to whether or not formal economic evaluations were available. Where this type of evidence did exist it was presented alongside the clinical evidence with advice on the quality of the evidence and its applicability to the recommendations. However, in the majority of areas there was no formal economic evidence and this problem was exacerbated by a lack of systematic and readily available information on:

- The potential costs and benefits of any of the specific interventions or models of service delivery considered -- this is particularly problematic in relation to benefits, as costs can often be estimated from other sources.
- The current resource use associated with MS both in the National Health Service (NHS) and wider society
- The current range of clinical practice within the National Health Service

While health economic analysis can provide a framework for collating information from a variety of sources in order to estimate, and systematically compare, costs and benefits, this is a complex and labour intensive process and it does require a level of clinical evidence that is not readily available in MS. As a result the group prioritised those areas, which they believed would benefit most from additional information on costs and benefits. Priorities were assessed on the basis of:

- Potentially large health benefits
- A potentially large effect on NHS resources (positive or negative)
- Considerable uncertainty surrounding the benefits and resources
- Potentially large service impact
- Important equity considerations

A number of areas were suggested by the health economist and the clinical advisor, and the GDG identified three priorities: the use of magnetic resonance imaging scans in the diagnosis and continued management of MS; the delivery of high dose corticosteroids for acute relapse; and the issue of specialist vs generalist services for the provision of care. This third area was not explored in detail due to time constraints. Details of the work carried out in the first two areas are included in Appendices E and F of the original guideline document.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The guideline was validated through two consultations.

1. The first draft of the guideline (the full guideline, National Institute for Clinical Excellence [NICE] guideline and Quick Reference Guide) were consulted with Stakeholders and comments were considered by the Guideline Development Group (GDG)
2. The final consultation draft of the Full guideline, the NICE guideline and the Information for the Public were submitted to stakeholders for final comments.

The final draft was submitted to the Guideline Review Panel for review prior to publication.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Evidence categories (Ia-IV) and recommendation grades (A-D) are defined at the end of the "Major Recommendations" field. In addition to evidence-based recommendations, the guideline development group also identified evidence from diagnostic studies (DS) and from Health Service Circular (HSC) 2002/004.

General Principles of Care

Communication

D - All communication with all people with multiple sclerosis (MS) should comply with the general principles of good communication, shown in Table 2 of the original guideline document.

D - Some people with MS may not be able to follow everything fully or remember complex details. This includes people who have no obvious disability. So, when talking to the person with MS, the health care professional should:

- Be straightforward
- Check the person has understood
- Back up what was said with written (and other) material
- Reinforce as necessary

Emotional Support

D - A person with MS may benefit from emotional support; this should be considered by each individual and team in contact with the individual. Where possible, that emotional need should be met directly or through referral to a suitable resource.

Encouraging Autonomy/Self-Management

D - People with MS should be enabled to play an active part in making informed decisions in all aspects of their MS health care by being given relevant and accurate information about each choice and decision.

D - As far as possible, people with MS should be helped to manage their own general health through the following information and advice provided in written, audio, or other media on:

- Specific activities that promote health maintenance and prevent complications
- Changes in their health that may require them to take further action
- The condition and its management (including both local and national sources of further information and support in clear and accessible language)

This function could be fulfilled by working in conjunction with local voluntary organizations and, through acquiring the skills needed to:

- Seek, evaluate, and use advice and help available
- Communicate effectively with health care professionals (for example, through participation in the Expert Patient Programme)

Support to Family and Carers

D - Family members (including any school children) living in the same house as the person with MS and any family members delivering substantial support, even if living elsewhere, should be supported by:

- Asking about their physical and emotional health and well-being, especially in the case of children aged 16 years or less, and offering advice and referring on for additional support if necessary
- Providing them with general factual information about MS; this should only be extended to include more specific information related to the person with MS with the permission of that person
- Ensuring that they are willing to undertake support of personal activities of daily living (such as dressing and toileting), are safe and competent at such tasks, and that the person with MS is happy for them to provide such assistance
- Informing them about social services and their entitlement to carer assessment and support procedures

Assessment and Measurement

D - The review checklist shown in Table 3 of the original guideline document should be used each time a person with MS starts a new "episode of care" (including initial diagnosis), and whether or not the presenting issues relate to the MS. The health care professional should:

- Record the information for future comparison
- Refer to the specific recommendations made in this document if any problem is identified

D - Health care staff who frequently undertake MS-specific assessments or treatments should:

- Be familiar with simple methods for detecting impairment and limitations on activities
- Be trained in their use and interpretation (if used)

D - All health care staff within a local health community should use the same simple methods for common assessments.

D - When initially assessing an individual and when undertaking any treatment, health care staff should consider the characteristics of a measure (see resource pack on the National Institute for Clinical Excellence Web site: www.nice.org.uk/pdf/cg008_msresourcepack.pdf) recognising that:

- Formally evaluated measures may not exist or be practical.
- Personalised measures should be considered, including comparing the outcome against goals agreed (goal attainment scaling).

D - Before embarking on any course of treatment, the health care professional should be satisfied that the individual fully understands the implications of the treatment and is able to participate in it as necessary.

Further guidance may be found at the Department of Health consent website (www.doh.gov.uk/consent/index.htm).

Teamwork

Teams and Goal Setting

D - When several health care and other professionals are involved with a person with MS, they should work together with the person and his or her family, as a team:

- Towards common agreed goals
- Using an agreed common therapeutic approach

D - The goals set should:

- Be agreed as relevant and important by the person with MS
- Cover both short-term specific actions and longer-term outcomes
- Be challenging or ambitious but achievable
- Be set both at the level of individuals and at the level of the team as a whole
- Be formulated in such a way as to leave no doubt as to when they have been met

D - Goal attainment scaling should be considered as one way of setting goals and evaluating progress.

Specialist Services

D - Every health care commissioning authority should ensure that all people with MS have ready access to a specialist neurological service for:

- Diagnosis of MS initially, and of subsequent symptoms as necessary
- Provision of specific pharmacological treatments, especially disease-modifying drugs, and enacting the risk-sharing scheme for interferon beta and glatiramer acetate

D - The health care commissioning authority should also ensure that its population has ready access to a specialist neurological rehabilitation service. This should be available to all people with MS when the presenting problem is outside the competence of the first point of contact, for:

- Undertaking assessment (that is, diagnosis) when the person has complex problems
- Undertaking specific pharmacological or other therapies
- Providing an integrated programme of rehabilitation when the person has complex problems
- Monitoring change, especially when the person with MS has more severe impairments or limitations on activities
- Giving advice to other services

D - As a minimum, the specialist neurological rehabilitation service should have as integral members of its team, specialist:

- Doctors
- Nurses
- Physiotherapists
- Occupational therapists
- Speech and language therapists
- Clinical psychologists
- Social workers

D - The team should either have as team members, or through agreed mechanisms, ready access to other local relevant specialist services with expertise in treating neurologically disabled people, to cover:

- Dietetics
- Liaison psychiatry
- Continence advisory and management services
- Pain management services
- Chiropody and podiatry
- Ophthalmology services

Working across Organisations

D - All parts of the health care system, social services, and other statutory services should have agreed protocols that specify:

- How responsibility for people with MS is shared with other groups or organisations

- What agreed descriptive information (that is, a common dataset) about the person with MS should always be shared
- The point of contact within any service or organisation, and how contact should be made

D - People with MS should be able to identify and contact:

- A named person in their health area who is responsible for all National Health Service (NHS) services for local people with MS (including coordination and collaboration with other statutory services)
- A named person in their health area with clinical expertise who is able to respond to any inquiry on clinical problems (and to guide the person to the most appropriate local service)
- A named person within any health care team with whom they are involved

Timing of Actions

To be useful (that is, to be effective and efficient) it is important that any intervention is timely.

D - Any action recommended within these guidelines should be undertaken within a time that takes into account:

- Risk of direct harm associated with any delay
- Distress or discomfort being experienced or likely to occur
- Risk of secondary complications associated with delay
- Risk of harm to others (for example, carers) associated with delay
- Any nationally recommended targets for timing
- Action being taken by any other person or service

Within Team Communication - a Conceptual Framework

D - All individual clinicians, professional groups, and organisations involved in the care of those with MS should use the World Health Organization's International Classification of Functioning (WHO ICF) model of illness and its vocabulary.

Support over Time

D - Services should cater for the varying needs of people with MS over time, by:

- Responding in a timely and flexible way to the intermittent acute needs of people with MS, especially in the early phases
- Identifying and reducing the risks of complications that might develop in the individual
- Making fully available to people with MS population-based programmes of health promotion and/or disease prevention (such as screening for cervical carcinoma), specifically taking into account an individual's possible impairments and activity limitations

D - When any "episode of care" (medical or rehabilitation treatment programme) ends (that is, when no further benefit is anticipated), the health care team should:

- Ensure that any necessary long-term support needs are met.
- Ensure that the person with MS knows who to contact and how to contact them in the event that the person with MS experiences a change in his/her situation.
- Discuss with the person with MS whether they want a regular review of their situation and, if so, agree on a suitable and reasonable interval and method of review (for example, by phone or post or as an outpatient).

D - Health services should ensure that there are mechanisms to allow good communication between health and social services at all times.

D - Individuals who are severely impaired and markedly dependent should have their support needs reviewed at least yearly, and they should have these needs met as necessary and in accordance with their wishes, through one or more of the following:

- Additional support in the home
- Respite care in the home
- Respite care in another age-appropriate setting
- Moving into a residential or nursing home

Diagnosis

Making the Diagnosis of MS

There is no single specific diagnostic test available, but in practice the diagnosis can be made clinically in most people.

D - When an individual presents with a first episode of neurological symptoms or signs suggestive of demyelination (and there is no reasonable alternative diagnosis), a diagnosis of MS should be considered.

D - When an individual presents with a second or subsequent set of neurological symptoms that are potentially attributable to inflammatory or demyelinating lesions in the central nervous system (and again, there is no reasonable alternative diagnosis), the individual should be referred to an appropriate expert for investigation.

D - A diagnosis of MS should be made clinically:

- By a doctor with specialist neurological experience
- On the basis of evidence of central nervous system lesions scattered in space and time
- Primarily on the basis of the history and examination

D - When doubt about the diagnosis remains, further investigation should:

- Exclude an alternative diagnosis, or
- Find evidence that supports the potential diagnosis of MS
    - Dissemination in space should usually be confirmed, if necessary, using a magnetic resonance imaging (MRI) scan, interpreted by a neuroradiologist if possible, using agreed criteria such as those described by McDonald and colleagues (McDonald et al, 2001).
    - Dissemination in space may also be confirmed using evoked potential studies. Visual evoked potential studies should be the first choice.
    - Dissemination in time should be confirmed clinically or using the MRI criteria described in Table G1 in Appendix G of the original guideline document.

D - Other tests supportive of the diagnosis of MS, such as analysis of the cerebrospinal fluid, should only be used either when the investigation is being undertaken to exclude alternative diagnosis or when the situation is still clinically uncertain.

DS - The diagnosis of MS is clinical and an MRI scan should not be used in isolation to make the diagnosis.

DS - A computed tomography (CT) brain scan should only be used to exclude alternative diagnoses that can be diagnosed using that investigation.

DS - Any cerebrospinal fluid (CSF) samples taken from individuals who might have MS should be tested for the presence of oligoclonal bands and should be compared with serum samples.

D - The evidence supporting the diagnosis and its degree of certainty should always be documented formally in the medical notes and letters discussing the diagnosis. This allows the diagnosis to be critically reviewed and reinvestigated if necessary.

Involving the Individual in the Diagnostic Process

C - An individual should be informed of the potential diagnosis of MS, as soon as a diagnosis of MS is considered reasonably likely (unless there are overwhelming patient-centred reasons for not doing so). This should occur before undertaking further investigations to confirm or refute the diagnosis.

Throughout the process of investigating and making the diagnosis of MS, the health care professional should:

- C - Find out what and how much information the individual wants to receive. (This should be reviewed on each occasion.)
- D - Discuss the nature and purpose of all investigations, especially the likely outcomes and their implications for the individual.

C - If a diagnosis of MS is confirmed, the individual should be told by a doctor with specialist knowledge about MS. (This is usually a consultant or experienced specialist registrar.) See also the recommendations for good communication in Table 2 of the original guideline document.

After the diagnosis has been explained, the individual should be:

- D - Offered in the near future* at least one more appointment to see wherever possible the doctor who gave the original diagnosis
- D - Put in touch with or introduced to a skilled nurse or other support worker, ideally with specialist knowledge of MS and/or other neurological conditions and counselling experience
- C - Offered written information about local and national disease-specific support organizations
- D - Including details of local rehabilitation services
- A - Offered information about the disease, preferably in the form of an information pack, specific to the newly diagnosed

*The Guideline Development Group debated the meaning of the words "in the near future". In this context, it is taken to mean that the exact time will vary according to clinical need but should be, in the opinion of the development group, no longer than 4 weeks.

B - Within 6 months of diagnosis, the individual should be offered the opportunity to participate in an educational programme to cover all aspects of MS.

Diagnosis of an Acute Episode

General Diagnosis

D - If a person with MS has a relatively sudden (within 12-48 hours) increase in neurological symptoms or disability or develops new neurological symptoms, a formal assessment should be made to determine the diagnosis (that is, the reason for the change). This should be recorded clearly.

D - This diagnostic assessment should:

- Be undertaken within a time appropriate to the clinical presentation
- Consider the presence of an acute infective cause
- Involve a general practitioner or acute medical/neurological services

D - Further neurological investigation should not be undertaken unless the diagnosis of MS itself is in doubt.

Diagnosis of Optic Neuritis

Acute, sometimes painful, reduction or loss of vision in one eye, optic neuritis, is a relatively common presenting symptom of MS.

D - Every individual presenting with an acute decline in visual acuity, with or without associated pain, should be seen by an ophthalmologist for diagnosis.

D - If the diagnosis is confirmed as optic neuritis, without any other specific cause and possibly due to MS, the ophthalmologist should discuss the potential diagnosis with the individual (unless there are overwhelming patient-centred

reasons for not doing so). A further referral to a neurologist for additional assessment should be offered.

Diagnosis of Transverse Myelitis

An acute episode of weakness or paralysis of both legs with sensory loss and loss of control of bowels and bladder is an emergency that may be due to transverse myelitis, and it may be a symptom of MS.

D - Every person presenting with symptoms and signs of acute spinal cord dysfunction should be investigated urgently, especially to exclude a surgically treatable compressive lesion.

D - If a diagnosis of transverse myelitis is made (and there is no previous history of neurological dysfunction), the individual should be informed that one of the possible causes is MS.

Treatment

Treatment of Acute Episodes

Acute episodes of neurological symptoms are thought to arise from a process whereby the cerebral white matter becomes inflamed as the individual's own immune system starts to damage the myelin sheaths of the nerves (part of the white matter). Treatment recommendations are independent of whether the symptoms arise from a first presentation or a subsequent relapse.

A - Any individual who experiences an acute episode (including optic neuritis) sufficient to cause distressing symptoms or an increased limitation on activities should be offered a course of high-dose corticosteroids. The course should be started as soon as possible after onset of the relapse and should be either:

- Intravenous methylprednisolone, 500 mg-1 g daily, for between 3 and 5 days

  or

- High-dose oral methylprednisolone, 500 mg-2 g daily, for between 3 and 5 days

D - An individual should be given a clear explanation of the risks and benefits involved in taking corticosteroids.

D - Frequent (more than three times a year) or prolonged (longer than 3 weeks) use of corticosteroids should be avoided.

D - Other medicines for the treatment of an acute relapse should not be used unless as part of a formal research protocol.

Rehabilitation for Acute Episodes

When a person with MS experiences a sudden increase in disability or dependence, the individual should be:

- D - Given support, as required and as soon as practical, both in terms of equipment and personal care
- A - Referred to a specialist neurological rehabilitation service. The urgency of the referral should be judged at the time, and this referral should be in parallel with any other medical treatment required.

Interventions Affecting Disease Progression

HSC - People with relapsing-remitting MS, and those with secondary progressive MS in which relapses are the dominant clinical feature, who meet the criteria developed by the Association of British Neurologists are eligible for treatment under the risk-sharing scheme. See Health Service Circular 2002/004 (www.doh.gov.uk/pricare/drugsmultiplesclerosis.htm) and Table 5 of the original guideline document.

A - People with MS should be advised that linoleic acid 17 to 23 g/day may reduce progression of disability. Rich sources of linoleic acid include sunflower, corn, soya, and safflower oils.

D - The following treatments should not be used except in these specific circumstances:

- After full discussion and consideration of all the risks
- With formal evaluation, preferably in a randomised or other prospective study
- By an expert in the use of these medicines in MS with close monitoring for adverse events

A - The treatments are:

- Azathioprine
- Mitoxantrone
- Intravenous immunoglobulin
- Plasma exchange
- Intermittent (4-monthly) short (1-9 days) courses of high-dose methylprednisolone

A - The following treatments should not be used (because research evidence does not show beneficial effects on the course of the condition):

- Cyclophosphamide
- Antiviral agents (for example, aciclovir, tuberculin)
- Cladribine
- Long-term treatment with corticosteroids
- Hyperbaric oxygen
- Linomide
- Whole-body irradiation
- Myelin basic protein (any type)

Altering the Risk of Relapses

Infections and Immunisations

Infections may be associated with a worsening of disability, most often through indirect mechanisms such as an increased temperature. In some cases, infection may trigger a relapse.

C - People with MS should be offered immunisation against influenza.

C - People with MS should have any other immunisation they need, with advice that there is no known risk of causing a relapse of their MS.

Pregnancy

There is no evidence that pregnancy influences the overall course of the condition over time.

C - Women with MS who wish to become pregnant should be advised that the risk of relapse decreases during pregnancy and increases transiently postpartum.

C - When giving birth, women with MS should have the analgesia that seems most appropriate and acceptable to them, without fear of its affecting their MS.

Stress (Various Types)

Putative stresses include emotional stress, trauma, and stresses caused by medical intervention. In the absence of conclusive evidence, it has only been possible to make a recommendation on stress relative to surgery.

B - People with MS should be encouraged to have any surgery they need, using whichever anaesthetic technique is appropriate. They should be informed that there is no known increase in the risk of relapse.

Rehabilitation and Maintenance of Functional Activities and Social Participation

This section focuses on the ways in which health services can help people with MS to maximise their level of functional activities (that is, minimise disability and dependence) and help them maintain social roles. The general items addressed in this section should be looked at in conjunction with the specific recommendations given above under "Altering the Risk of Relapses."

General Points

D - If a person with MS starts to experience a new limitation on his or her activities, the cause should be identified medically, and the following considered:

- Is it due to an unrelated disease?
- Is it due to an incidental infection?

- Is it due to a relapse of the MS?
- Is it part of a gradual progression?

D - If the limitation persists despite treatment of any identified cause, the person with MS should be seen and assessed by a multidisciplinary service, specialised in neurologically based disability.

A - This service should implement a rehabilitation programme.

D - The components of the rehabilitation programme should include the following.

- Establishing the wishes and expectations of the person with MS
- Assessing and, if necessary, measuring relevant factors, in order to identify and agree goals with the person; these might include one or more of the following:
    - Identifying and treating any treatable underlying impairments
    - Giving task-related practice of a specific activity or activities
    - Providing suitable equipment (with training in its use)
    - Altering the environment as needed
    - Teaching others how to assist with (or take over) tasks
- Monitoring progress against set goals; the goals should be reviewed and reset, until no further goals exist and no further interventions are needed.

D - Where possible, both assessment and task-related practice should take place in the environment most appropriate to the task (for example, home, work, or leisure).

Vocational Activities - Employment and Education

D - Any person with MS who is in work or education should be asked specifically whether they have any problems, for example motor, fatigue, or cognitive difficulties.

D - Any individual who has problems that affect their work or education should be seen for further assessment of their difficulties, preferably by a specialist vocational rehabilitation service or specialist neurorehabilitation service.

D - The results of the assessment should be used:

- To advise the person with MS on strategies, equipment, adaptations, and services available to assist with vocational difficulties; and/or
- To advise the employer or others, with permission from the person with MS, on strategies, equipment, and adaptations to assist; and/or
- To give information to the disability employment advisor, if involved (see recommendation directly below)

D - The person should always be informed about available vocational support services (currently including Disability Employment Advisers and the Access to Work Scheme) and that there may be adjustments at work to which they are entitled under the Disability Discrimination Act.

D - Any individual who cannot stay in or find alternative employment should be advised about other options such as voluntary work and where to find information about these options.

Leisure and Social Interaction

D - Any person with MS whose participation in or enjoyment of a leisure or social activity becomes limited should be referred to a specialist neurological rehabilitation service which should:

- Identify whether previous activities are still achievable and, if not, help the person consider new activities
- Assess for, and then teach, the skills and techniques that could help achieve these activities
- If necessary refer the person to local services that might help them establish and continue leisure and social activities

Mobility

D - Any person with MS who experiences reduced mobility (and it affects or threatens his or her activities) should be seen and assessed by a specialist neurological rehabilitation service. The assessment should determine which of the following interventions are needed:

- Identification and treatment of any underlying impairment, especially weakness, fatigue, spasticity, ataxia, sensory loss, and loss of confidence
- Task-related practice of a specific mobility activity or activities (for example, walking, transferring, using a wheelchair, climbing stairs)
- Provision of suitable equipment, including wheelchairs, driving equipment, and adaptive technology (with training in its use)
- Alteration of the environment to increase independent mobility
- Teaching others how to safely assist with (or take over) tasks such as walking, climbing stairs, moving in bed, or transferring

A - Physiotherapy treatments aimed at improving walking should be:

- Offered to a person with MS who is, or could be, walking
- Given at home or on an outpatient basis, depending on the preference of the person with MS and local resources

Activities of Daily Living

Activities of daily living are usually divided into personal, domestic, and community activities.

D - Any person with MS who experiences a limitation in personal, domestic, or community activities should receive a comprehensive multidisciplinary assessment. This should be carried out by a team experienced in the treatment and management of MS and should cover the person's previous and current functioning in the following areas:

- Personal activities such as dressing, eating, using the toilet, and washing
- Domestic activities such as cooking, washing and ironing clothes, keeping the house clean, and dealing with household bills
- Community activities such as shopping, using public transport, negotiating the environment safely (for example, avoiding traffic), and accessing other public amenities
- Any caring or support activities within the home, including caring for children

D - A comprehensive assessment of this type should:

- Actively involve the person with MS, encouraging them to think about and define what they need to continue to achieve their goals and aspirations
- Take place on more than one occasion and in different environments
- Take into account the individual's priorities, interests, goals, and potential
- Consider environmental factors and the support available from family and carers
- Take into account both current and future needs

D - After the assessment, a programme of interventions should be developed for the person with MS, with the aim of increasing and maintaining independence wherever possible. The programme of interventions should be agreed by the individual. The interventions specified should be goal directed and designed to meet the individual's priorities, interests, and potential.

D - If the individual agrees, the programme of interventions should be shared with social services, and this must occur if social services are to be responsible for maintenance interventions.

D - There should be regular monitoring to check how effective the interventions are, with a view to changing them if necessary.

D - At the end of the planned programme, the person should know how to obtain a re-assessment if their situation changes.

Equipment, Adaptations, and Personal Support

D - Every person with MS whose activities are persistently affected should be assessed by a specialist neurological rehabilitation service to determine how their environment might be improved, enabling for example:

- An increase in the person's independence
- The impact on their activities to be minimised
- A reduction in risk to the person or their carers

The environmental changes considered should include the following:

- Provision of (or changes in) equipment
- Alterations in the structure of the building
- Provision of (or change in) the personal support provided

Equipment and Adaptations

D - If a person with MS depends on someone else for an activity (especially in mobility), an expert should assess whether an aid or adaptation, including an environmental control system, could be of benefit. For example, it may increase the independence of the person with MS, and/or minimise the stress on, or risk for, the person who assists them. The person with MS or, if necessary, their family and/or carers, should be taught how to use the equipment. Ability and safety in using the equipment should be checked at least once, after a suitable interval.

D - The service providing or recommending the equipment should ensure the equipment's continuing appropriateness and safety, at appropriate intervals.

Personal Support

D - If a person with MS receives support or supervision from someone for any particular activity, an assessment should be made to determine whether a greater level of independence could be achieved.

D - If personal support is provided by family, friends, or paid carers, an expert should offer knowledge and skills to help the carer(s) provide assistance in ways that maintain the dignity and utmost independence of the person with MS, while also not threatening the health or well-being of the carers.

D - If support is given on a daily basis for more than 1 hour, then the level and appropriateness of the support offered should be monitored, at a minimum, on a yearly basis. It should also be reviewed after any significant medical event (for example, infection, relapse, complication, departure of family member). Any person involved in hands-on activities, especially physical moving and handling, should be taught appropriate safe techniques for the individual situation and should be able to seek further tuition or advice when they need it.

Managing Specific Impairments

The range of potential symptoms is vast; only the more common ones are covered in these guidelines. In most people there will be several if not many symptoms, and although this section is subdivided by symptom, in practice the overall situation of the individual must always be borne in mind before acting. Thus for each impairment there is an unwritten first recommendation: do not start or modify treatment until all aspects of the individual's clinical situation have been established and understood and the wishes and expectations of the person with MS have been established.

Fatigue

D - Each professional in contact with a person with MS should consider whether fatigue is a significant problem or a contributing factor to their current clinical state.

If fatigue is disrupting the individual's life, then the following recommendations apply.

D - The presence of significant depression should be considered; if significant depression is present, it should be treated.

D - Other factors causing fatigue, such as disturbed sleep, chronic pain, and poor nutrition, should be identified and treated if possible.

D - Some medicines may exaggerate fatigue; thus any medication being taken should be reviewed.

D - General advice and training on how to manage fatigue should be given, including encouragement to undertake aerobic exercise and to use energy-conservation techniques.

D - At present, no medicines targeted at fatigue should be used routinely,

A - although people with fatigue should be informed that a small clinical benefit might be gained from taking amantadine 200 mg daily.

Bladder Problems

Bladder Dysfunction

D - Each professional in contact with a person with MS should consider whether the person has any problems controlling bladder function. Problems may include frequency or urgency of micturition, sleep disturbance from nocturia (awaking with need to empty bladder), difficulty in passing urine, or incontinence of urine.

D - Any person with MS who has bladder symptoms should:

- Have their post-micturition residual bladder volume measured using a simple measure such as ultra-sonography of the bladder
- Be assessed for the presence of a urinary tract infection clinically and, if necessary, using an appropriate dipstick for nitrites and leucocyte esterase. Treatment should be provided, if necessary. (See recommendations below under "Urinary tract infections.")

Urgency or urge incontinence sufficient to be bothersome or cause incontinence should be treated in the first instance using:

- D - Advice on changes to clothing and/or toilet arrangements (for example, provision of a commode downstairs)
- D - Intermittent self-catheterisation if there is a high residual volume, and the person is able and willing
- Anticholinergic medicines such as:
    - A - Oxybutynin or
    - D - Tolterodine
- D - Checking for an increased post-voiding residual volume if symptoms recur

A - Any person who has nocturia should be offered desmopressin (100-400 micrograms orally or 10-40 micrograms intranasally) at night to control the symptom.

A - Any person who wishes to control urinary frequency during the day (for example, when travelling) and who has failed with other measures should be offered desmopressin (100-400 micrograms orally or 10-40 micrograms intranasally), but desmopressin should never be used more than once in 24 hours.

Any person with MS who, despite treatment, has incontinence more than once a week should:

- D - Be referred to a specialist continence service for further assessment and advice
- A - Be considered for a course of pelvic floor exercises
- B - Preceded by a course of electrical stimulation of the pelvic floor muscles (if such a course is available)

D - Any person with MS who experiences persistent incontinence should be offered a convene drain (for men) or pads (for women).

D - Any person who has continued bladder symptoms despite pharmacological and other treatments should be considered:

- For intermittent self-catheterisation taught by a suitably trained specialist, or
- For longer-term urethral catheterisation as a means of control, with suprapubic catheterisation being considered especially when active sexual function is still wanted. See recommendations below on use of catheters.

D - Intravesical botulinum toxin should only be used by suitably trained doctors in the context of clinical research.

Urinary Tract Infections

A - Any person with MS at risk of urinary tract infections should not be recommended prophylactic use of antibiotics or cranberry juice.

If a person with MS experiences new urinary tract symptoms or develops general malaise and/or worsening of existing symptoms with a raised temperature, they should:

- D - Be given a urine dipstick test for infection and culture, if necessary
- A - Be offered treatment with an appropriate antibiotic

D - Any person with MS with more than three confirmed episodes of urinary tract infection in a period of 1 year should be assessed by a continence specialist for residual urine and other evidence of risk factors and offered appropriate treatment and guidance.

The general principles of care for people with long-term urinary catheters, as described in the NICE guideline on prevention of health care-associated infection in primary and community care (see Section 6 of the original guideline document

for reference) should be followed. Of particular note in treating a person with MS are:

D - Long-term indwelling catheters should:

- Be used only after all reasonable non-invasive methods have been tried
- Be reviewed regularly, to check whether alternative less invasive methods can be used.

Drainage systems from the catheter should:

- D - Be emptied regularly, before the bag is over-full
- A - Bladder installations and wash-outs should not be routinely used.

Bowel Problems

D - Each professional in contact with a person with MS should consider whether the person has any problems controlling bowel function. Potential problems include urgency, difficulty, pain, constipation, or incontinence.

D - Any person with MS who has apparent constipation (pain on or difficulty with defecation, bowels open less than twice a week) should be offered advice on fluid intake and dietary changes that might help and then be considered for oral laxatives.

D - Any individual with faecal incontinence should be assessed for constipation with overflow, possibly exacerbated by laxative use.

D - If a person with MS has apparent constipation (pain on or difficulty with defecation, bowels open less than twice a week) despite treatment with oral laxatives, he or she should be considered for the routine use of suppositories or enemas.

Weakness and Cardiorespiratory Fitness

D - Each professional in contact with a person with MS should consider whether muscular weakness is a significant problem or contributing factor to the person's current clinical state. If so, the person should be assessed to determine the nature and cause of the weakness.

D - People with a limitation of their activities should be assessed for weakness of voluntary motor control using a valid technique.

D - People with motor weakness should be shown and advised to undertake exercises and techniques to maximise strength and endurance appropriate to their circumstances,

B - including aerobic training.

D - Usually, specific exercises should be selected and explained by a neuro-physiotherapist or other members of the neurological rehabilitation team.

D - People with motor weakness should be taught techniques and given equipment, such as orthoses, needed to optimize performance of activities appropriate to their circumstances.

D - People with weakness sufficient to cause postural abnormalities should be assessed for specialist supportive equipment, including but not limited to seating.

Spasticity and Spasms

D - Each professional in contact with a person with MS who has any muscle weakness should consider whether spasticity or spasms are a significant problem or a contributing factor to the person's current clinical state.

D - If spasticity or spasms are present, then simple causative or aggravating factors such as pain and infection should be sought and treated.

D - Every person with MS who has persistent spasticity and/or spasms should be seen by a neuro-physiotherapist to assess and advise on physical techniques, such as passive stretching and other physical techniques, to reduce spasticity and especially to avoid the development of contractures. Families and carers should be taught how to prevent problems worsening, and a monitoring system should be put in place.

D - More active specific measures should be considered only if the spasms or spasticity are causing pain or distress or are limiting (further) the individual's dependence and activities. In this case, both benefits and risks should be considered carefully. A specific goal (or goals) should be set, but will rarely include improved performance in activities.

A - Initial specific pharmacological treatment for bothersome regional or global spasticity or spasms should be with baclofen or gabapentin.

The following should be given only if treatment with baclofen or gabapentin is unsuccessful or side effects are intolerable:

- A - Tizanidine
- D - Diazepam
- D - Clonazepam, or
- D - Dantrolene

D - Combinations of medicines and other medicines such as anticonvulsants should only be used after seeking further specialist advice.

D - People with MS who have troublesome spasticity and spasms unresponsive to simpler treatments should be seen by a team specialising in the assessment and management of spasticity.

The team should consider using one or more of the following:

- D - Standing and weight-bearing through legs
- D - Splints

- C - Serial casting
- D - Special or customised seating, such as tilt-in-space chairs
- A - Intrathecal baclofen
- D - Phenol injections to motor points or intrathecally

B - Intramuscular botulinum toxin should not be used routinely but can be considered for relatively localized hypertonia or spasticity that is not responding to other treatments. It should be used when specific goals can be identified, and:

- In the context of a specialist service that can consider all aspects of rehabilitation (for example, seating)
- By someone with appropriate experience and expertise
- Followed by active input from a neurophysiotherapist

Contractures at Joints

D - Any person with MS who has weakness and/or spasticity sufficient to limit the regular daily range of movement around a joint should be considered at risk of developing a contracture at that joint and should be considered for preventative measures.

D - Any person with MS at risk of developing contractures should have the underlying impairments assessed and ameliorated if possible (see sections above on weakness and spasticity).

D - Any person with MS at risk of developing contractures should be informed; the individual and/or carer(s) should be taught how to undertake preventative measures, such as regular passive stretching of the joint(s) at risk and appropriate positioning of limbs at rest. In more severe instances, specialist advice should be obtained on seating and positioning, including positioning in bed.

D - Any person with MS who develops a contracture should be assessed by a suitable specialist for specific treatment; the assessment should take into account the problems caused by the contracture, the discomfort and risk of any treatment, and the wishes of the person. At the same time, renewed efforts should be made to reduce the underlying causes and to prevent further contracture.

Specific treatment modalities to be considered should include prolonged stretching using:

- A - Serial plaster casts
- D - Other similar methods, such as standing in a standing frame and using removable splints

These are usually combined with:

- D - Local botulinum toxin injection, and
- D - Surgery when necessary

Ataxia and Tremor

D - Any person with MS who experiences a limitation of activities due to tremor should be assessed:

- By a specialist rehabilitation team for medicines, treatment techniques, and equipment (using the general principles of goal setting and evaluation recommended)

And, if problems remain severe and intractable, the person should be assessed:

- By a neurosurgical team from a specialist centre, for suitability for an operation to reduce ataxia (after being given a full explanation of its major risks and possible benefits)

Sensory Losses

D - Any person with MS who experiences a limitation of activities not otherwise explained should be assessed for sensory losses.

D - Any person with sensory disturbance sufficient to limit activities should be seen and assessed by a specialist rehabilitation team; the individual should be given advice on techniques and equipment to ameliorate their limitations and advice on personal safety.

Visual Problems

Difficulty in reading or seeing television is not uncommon, and the usual reason (other than the lack of glasses) is that the control over eye movement is poor. Actual loss of visual function due to optic neuritis is rare.

D - Each professional in contact with a person with MS should consider whether the individual's vision is disturbed, by considering, for example, the individual's ability to read the text of a newspaper, book, or other written material and to see the television.

D- Any person with MS who is unable to read normal print or to see the television should be assessed for glasses by an optometrist.

D - Any individual who experiences reduced visual acuity, despite using suitable glasses, should be assessed in a specialist ophthalmology clinic.

D - Any person with MS who has nystagmus that causes reduced visual acuity or other visual symptoms should be offered a time-limited trial of treatment with oral gabapentin. This should be initiated and monitored by a suitable specialist.

D - Any person with MS who is unable to read (due to low visual acuity) or to see television, despite all available treatment, should be:

- Assessed for low-vision equipment and adaptive technology
- Referred to the appropriate specialist social services team
- Registered as partially sighted

Pain

Pain may arise either directly from the neurological damage (neuropathic pain) or from musculoskeletal problems due to reduced mobility. People with MS may also have pain from unrelated causes.

D - Each professional in contact with a person with MS should ask whether pain is a significant problem for the person or whether it is a contributing factor to their current clinical state.

D - All pain, including hypersensitivity and spontaneous sharp pain, suffered by a person with MS should be subject to full clinical diagnosis, including a referral to an appropriate specialist service if needed.

Musculoskeletal Pain

D - Every person with MS who has musculoskeletal pain secondary to reduced or abnormal movement should be assessed by specialist therapists to see whether exercise, passive movement, better seating, or other procedures might be of benefit.

D - If nonpharmacological means are proving unsuccessful in managing the musculoskeletal pain (arising from reduced movement and/or abnormal posture), the individual should be offered appropriate analgesic medicines.

A - Any person with MS who has continuing unresolved secondary musculoskeletal pain should be considered for transcutaneous nerve stimulation or antidepressant medication.

A - Treatments that should not be used routinely for musculoskeletal pain include ultrasound, low-grade laser treatment, and anticonvulsant medicines.

A - Cognitive behavioural and imagery treatment methods should be considered in a person with MS who has musculoskeletal pain only if the person has sufficiently well-preserved cognition to participate actively.

Neuropathic Pain

A - Neuropathic pain, characterised by its sharp and often shooting nature, and any painful hypersensitivity should be treated using anticonvulsants such as carbamazepine or gabapentin or using antidepressants such as amitriptyline.

D - If the neuropathic pain remains uncontrolled after initial treatments have been tried, the individual should be referred to a specialist pain service.

Cognitive Losses

About half of all people with MS may have impaired ability to learn and remember, to plan, to concentrate, and to handle information quickly. The relatively high frequency of these losses is often not appreciated by clinicians but equally must not be assumed.

D - Health care staff should always consider whether the person with MS has any impairment of attention, memory, and executive functions sufficient to be a problem or to be a contributing factor to their current clinical status.

D - When a person with MS is being involved in making a complex medical decision or is starting a course of complex treatment that requires their active participation, they should have their cognition sensitively assessed to ascertain their ability to understand and participate adequately and to determine what support they may need.

D - Any person with MS experiencing problems due to cognitive impairment should:

- Have their medication reviewed, to minimise iatrogenic cognitive losses
- Be assessed for depression, and treated if appropriate

D - Any person with MS complaining of cognitive problems and any person where this is suspected clinically, should be:

- Offered a formal cognitive assessment, coupled with specialist advice on the implications of the results
- Advised, if necessary, about any vulnerability to financial or other abuse that may arise, and how to reduce the risk
- Asked whether the results can be communicated to other people

D - Any person with MS whose level of dependence or whose social behaviour cannot be easily understood in terms of other known impairments or factors should be offered a formal neuro-psychological assessment by a specialist clinical psychologist (and speech and language therapist if appropriate); it should be investigated whether cognitive or communicative losses are a contributing factor and, if so, appropriate management should be recommended.

Emotionalism

D - A person with MS may comment (or it may be noticed) that they may cry or laugh with minimal provocation and with little control; the individual should be offered a full assessment of their emotional state by someone with suitable expertise.

If the emotionalism is sufficient to cause concern or distress to the person with MS or their family, then treatment with an antidepressant should be offered:

- B - Usually a tricyclic antidepressant, or
- D - A selective serotonin re-uptake inhibitor

D - If the person with MS still has uncontrolled emotionalism, is unwilling or unable to take antidepressants, or is not responsive to antidepressants, then advice on behavioural management strategies should be offered by a suitable expert.

Depression

If depression is suspected, the person with MS should be assessed:

- DS - By asking "Do you feel depressed?", or using a similar screening method
- D - Clinically if necessary
- D - By a liaison psychiatrist if severe depression is present

D - In any person with MS who is depressed, a list of possible contributing factors (such as chronic pain and social isolation) should be drawn up.

D - Assessment and interventions should be undertaken to ameliorate those contributing factors, where possible.

D - Specific antidepressant medication,

A - or psychological treatments such as cognitive behavioural therapy,

D - should be considered, but only as part of an overall programme of depression management.

D - Other concurrent psychological diagnoses, especially anxiety, should be considered.

Anxiety

D - Any person with MS whose function or happiness is being adversely affected by anxiety should be offered specialist assessment and management.

A - In people with MS with marked anxiety, psychologically based treatment should be offered.

D - Pharmacological treatment of anxiety should be through using antidepressants or benzodiazepines.

The Committee on Safety of Medicines (CSM) guidelines on the use of benzodiazepines (reproduced in the British National Formulary) should be used.

Swallowing Difficulties

Dysphagia (disturbance of swallowing) may lead to choking and aspiration of food or liquid into the lungs. It is more common in those with severe impairment. Facilities for the insertion of percutaneous endoscopic gastrostomy (PEG) tubes are widely available.

D - Any person with MS who is unable to transfer from bed to chair independently or who has any symptoms or signs of bulbar dysfunction such as any abnormality of eye movements, slurring of speech, or ataxia, should be asked whether they have difficulties with chewing or swallowing food or fluids (for example, coughing), also whether they have altered their diet because of previous problems.

DS - Any person with MS with any bulbar symptoms or signs and any person with MS who has a chest infection should have their swallowing assessed by a competent person (using a standardised swallowing test).

D - People with MS who, on formal assessment, have an abnormality of swallowing should be further assessed by a specialist speech and language therapist. Advice should be given on specific swallowing techniques and on adapting food consistencies and dietary intake. Further diagnostic assessment (for example, by videofluoroscopy) should be undertaken if:

- First-line therapy and advice are ineffective.
- A specific objective of the investigation can be identified.

D - Any person with MS who has difficulty swallowing for more than a few days should be assessed by a neurological rehabilitation team, to review the need for:

- Adjustments to or provision of seating that will increase ease and safety of swallowing and feeding
- Chest physiotherapy
- Short-term use of nasogastric tube, especially if recovery is anticipated

D - Any person with MS who has swallowing difficulties for more than 1 month should have his or her weight or nutritional status checked on a monthly basis (using a validated nutritional measure if needed). Dietary intake should be reviewed if there is continuing weight loss or evidence of malnutrition.

D - If PEG feeding is anticipated as being a likely future option, discussions with the person with MS should be commenced at an early stage and their wishes documented.

D - If swallowing difficulties persist, a PEG tube should be considered if any of the following occur:

- Recurrent chest infections
- Inadequate food and/or fluid intake
- Prolonged or distressing feeding
- Nasogastric tube in situ for over 1 month

A - If PEG placement is indicated and agreed, the PEG tube should be inserted by a suitable specialist. Before the person with MS is discharged from hospital, full training should be given to any family members and carers who are going to be involved in feeding.

Speech Difficulties

B - Any person with MS who has dysarthria sufficient to affect communication with people outside the home or over the phone, and any person who is concerned about their speech sound or clarity, should be assessed and given advice by a specialist speech and language therapist.

D - Any person with MS whose ability to communicate is affected significantly by dysarthria should be taught techniques to improve and maintain speech production and clarity; tuition should be provided by a specialist speech and language therapist, working with any other members of the neurological rehabilitation service who are involved.

D - Any person who continues to have difficulties in communication should be considered for, and if appropriate taught the use of, alternative non-verbal means of assisting with or replacing speech.

D - Any person with MS who cannot communicate effectively should be assessed by a specialist speech and language therapist for an augmentative aid to communication, which should then be provided as soon as possible. The family members, carers, and other frequent communicators with any person with MS who has significant communication difficulties should have discussions with the speech and language therapist on how best to help the person communicate.

Sexual Dysfunction

MS may disturb the normal sexual physiology, and it may result in other impairments (such as spasms) that make normal sexual behaviour difficult. These may make it difficult for the person to establish or maintain partnership relations. Both aspects are important and should be considered together.

Male Sexual Function

Men with MS:

- D - Should be asked whether they experience erectile dysfunction (relative or absolute) and, if so, whether it is of concern
- A - Who have persisting erectile dysfunction and who do not have contraindications should be offered sildenafil 25–100 mg
- D - Who do not respond to sildenafil should be assessed for the general and specific factors that might cause or worsen erectile dysfunction and that are amenable to treatment (such as depression, anxiety, vascular disease, diabetes, and taking medicines that may cause erectile dysfunction). Other specific treatments such as alprostadil or intra-cavernosal papaverine should then be considered.

Female Sexual Function

D - Women with MS should be asked whether they experience sexual dysfunction (such as failure of arousal or lubrication or anorgasmia) and, if so, whether it is of concern.

D - Women with sexual dysfunction should be assessed for the general and specific factors that might cause or worsen sexual dysfunction and that are amenable to treatment (such as depression, anxiety, vascular disease, diabetes, and taking medicines that may cause sexual dysfunction).

Partnership Relations

D - Every person (or couple) with MS should be asked sensitively about or given the opportunity to remark upon any difficulties they may be having in establishing and/or maintaining wanted sexual and personal relationships; they should be offered information about locally available counselling and supportive services.

D - Every person (or couple) with persisting sexual dysfunction should be offered the opportunity to see a specialist (with particular expertise in sexual problems associated with neurological disease) and offered, as appropriate, advice on lubricants and the use of sexual aids and other advice to ameliorate their sexual dysfunction.

Pressure Ulcers

A pressure ulcer (decubitus ulcer or pressure sore) is an area of broken skin that is secondary to unrelieved pressure on the skin, often exacerbated by slight trauma -- for example, when being moved. Pressure ulcers may range from minor breaks to very large deep areas of dead tissues extending over many square centimeters and down to bone. Once present they can be difficult to heal and can cause general malaise and worsening of most impairments, and they carry a risk of generalised or localised infections. Many people with MS are at high risk of developing pressure ulcers because they may have, for example, limited mobility, impairment of sensory functioning, and reduced cognitive function. Most pressure ulcers can be avoided by good anticipatory management. (See also the National Institute for Clinical Excellence Clinical Guideline on prevention of pressure ulcers [referenced in Section 6 of the original guideline document]).

D - Every person with MS who uses a wheelchair should be assessed for their risk of developing a pressure ulcer. The individual should be informed of the risk and offered appropriate advice.

Every person with MS who uses a wheelchair daily should be assessed by a suitably trained person whenever they are admitted to hospital (for whatever reason) for their need for pressure-relieving devices and procedures. The assessment should be clinical, specifically taking into account the risk features associated with MS, and not simply the recording of a pressure ulcer risk score; it should lead to the development and documentation of an action plan to minimise risk, including:

- D - Optimisation of nutritional status
- B - Provision of suitable equipment
- D - Documentation of agreed manual handling techniques

D - Every person with MS who is provided with a wheelchair by a statutory organisation (NHS or social services), or whose wheelchair seating is being reassessed, should specifically be considered for pressure-relieving procedures and devices -- not only in the wheelchair, but in all other activities, especially transfers and sleeping.

For every person with MS considered to be at risk on their bed (in hospital or in the community):

- A - An appropriate specialist mattress should be provided wherever they are lying down.
- A - Regular turning should not be depended upon as a policy for preventing pressure ulcers.
- D - The skin areas at risk should be inspected to ensure that adequate protection is being provided.

D - If a pressure ulcer occurs, it should be considered an adverse event worthy of investigation, and advice should be sought from a specialist service.

A - Any person with MS who develops a pressure ulcer should be nursed on a low-loss mattress (while in bed).

D - The ulcer should be dressed according to appropriate local guidelines.

Complementary Therapies

A - People with MS should be informed that there is some evidence to suggest that the following items might be of benefit, although there is insufficient evidence to give more firm recommendations:

- Reflexology and massage
- Fish oils
- Magnetic field therapy
- Neural therapy
- Massage plus body work
- T'ai chi
- Multi-modal therapy

D - A person with MS who wishes to consider or try an alternative therapy should be recommended to evaluate any alternative therapy themselves, including the risks and the costs (financial and inconvenience).

D - A person with MS should be encouraged to discuss any alternative treatments they are considering and to inform their doctors and other professionals if they decide to use any.

Definitions

Evidence Categories

Ia: Evidence from meta-analysis of randomised controlled trials

Ib: Evidence from at least one randomised controlled trial

IIa: Evidence from at least one controlled study without randomisation

IIb: Evidence from at least one other type of quasi-experimental study

III: Evidence from non-experimental descriptive studies, such as comparative studies, correlation studies and case-control studies

IV: Evidence from expert committee reports or opinions and/or clinical experience of respected authorities.

The guideline development group also identifies evidence from the National Institute for Clinical Excellence (NICE) guidelines or Health Technology Appraisal programme and evidence from Health Service Circulars (HSC) as follows:

NICE: Evidence from NICE guidelines or Health Technology Appraisal programme

HSC: Evidence from Health Service Circulars

Recommendation Grades

Grade A - Directly based on category I evidence

Grade B- Directly based on category II evidence, or extrapolated recommendation from category I evidence

Grade C- Directly based on category III evidence, or extrapolated recommendation from category I or II evidence

Grade D - Directly based on category IV evidence, or extrapolated recommendation from category I, II or III evidence

CLINICAL ALGORITHM(S)

Algorithms are provided in the original guideline document for the diagnosis of multiple sclerosis using McDonald criteria.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

REFERENCES SUPPORTING THE RECOMMENDATIONS

References open in a new window

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Implementation of the recommendations may ensure that people with multiple sclerosis will benefit from a coherent and consistent response from services, to minimize their problems as far as can be achieved.

- Recommendations may aid in making the correct diagnosis, reducing disease progression, and reducing the number of symptoms and functional problems experienced by persons with multiple sclerosis.

POTENTIAL HARMS

- Side effects of pharmacological treatments of multiple sclerosis
- The trials of oral vs. intravenous administration [of methylprednisolone] reported similar (minor) side effects in both arms. The risk of infection is greater from intravenous treatment, but it is not clear whether there may be a greater risk at home or in hospital.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

This guidance represents the view of the National Institute for Clinical Excellence/ National Collaborating Centre for Chronic Conditions (NICE/NCC-CC), which was arrived at after careful consideration of the evidence available. Health professionals are expected to take it fully into account when exercising their clinical judgment. The guidance does not, however, override the individual responsibility of health professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

Identifying relevant literature and evidence, evaluating the strength of that evidence, and collating it into a usable form required great efforts. It has to be recognised that:

- Relevant, often important evidence is scattered very widely, often in sources that are not easily available and sometimes not indexed.
- Much of the relevant evidence is not specific to multiple sclerosis (MS) (for example, evidence on the management of neuropathic pain is of great relevance but few studies are exclusively based on MS). This applies to most impairments and activities.
- Much of the evidence on costs and benefits comes from the US health care system and is therefore of limited applicability to a United Kingdom guideline.

The scope of the topic is such that there is a great volume of evidence that the Guideline Development Group (GDG) considered to be of very variable quality.

Guideline Limitations

The document and recommendations are subject to various limitations.

The commissioning authority, the National Institute for Clinical Excellence (NICE), is primarily concerned with health services, and so these recommendations only indirectly refer to social services, housing, and so on. Nonetheless, the importance of other agencies cannot be overstated and in each locality they should become actively involved.

Not all evidence used comes from multiple sclerosis (MS)-specific studies. A systematic approach was used to locate and appraise the evidence. Due to the magnitude of the literature, potentially relevant to MS specific inclusion or exclusion criteria were applied. The inclusion/exclusion criteria aimed to limit the included studies to those of a higher quality conducted primarily in people with MS. Where these were not available, well-conducted studies outside MS or lower-level studies in people with MS were included.

A general principle behind the search strategy was the use of studies relevant to the clinical situation. Where the situation was specific to MS, for example diagnosis, then the study population was limited to those with MS. However, where the situation was an impairment arising from neurological damage, then the search is usually focused upon that impairment when it arose from other neurological diseases causing similar damage. Variation between people with MS is far greater than the variation between people with the same impairment arising from different neurological conditions. Therefore this was not deemed to be extrapolation and the evidence was graded directly.

In areas which primarily relate to organisational matters or general principles such as communication, full systematic searching was not undertaken because priority was given elsewhere. In these areas, existing reviews and other information readily available was considered.

The evidence base was current as of October 2002. Since then additional research findings have become available. However, it is unlikely that these would have a significant impact upon the recommendations.

Using a systematic approach coupled with the grading of evidence used means that some relevant evidence may be omitted. It also means that some recommendations appear without evidence because the recommendation seems self-evident and good practice; no one will consider researching into the area (and ethical considerations might also preclude it). The Guideline Development Group recognises that much current practice without evidence may in fact be ineffective, but they also recognise that much current practice without evidence may be highly effective and may never acquire evidence. Consequently, the Guideline Development Group must emphasise that the lack of evidence cannot be used alone to justify a reduction or withdrawal of resources.

Finally it must be emphasised that these guidelines refer to recommended best clinical practice. It is not the purpose of these guidelines to specify what resources are needed or how appropriate resources are devoted to any particular recommendation.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

Implementation in the National Health Service

Local health communities should review their existing practice for multiple sclerosis (MS) against this guideline as they develop their Local Delivery Plans.

The review should consider the resources required to implement the recommendations detailed and in Section 1 of the original guideline document (and in the "Major Recommendations" section of this summary), the people and processes involved, and the timing over which full implementation is envisaged. Priorities for implementation are set out at the start of the original guideline document and in the section below. It is in the interests of people with MS that the implementation timeline is as rapid as possible. Relevant local clinical guidelines, care pathways, and protocols should be reviewed in the light of this guidance and revised accordingly. This guideline should be used in conjunction with the developing National Service Framework for long-term neurological conditions, which will define the broader context of neurological services.

Suggested audit criteria are listed in Appendix D of the original guideline document. These can be used as the basis for local clinical audit, at the discretion of those in practice.

The following recommendations have been identified as priorities for implementation.

Specialised Services

- Specialist neurological and neurological rehabilitation services should be available to every person with MS when they need them. This is usually when they develop any new symptom, sign, limitation on activities, or other problem, or when their circumstances change.

Rapid Diagnosis

- An individual who is suspected of having MS should be referred to a specialist neurology service, and seen rapidly within an audited time. The individual should be seen again after all investigations necessary to confirm or refute the diagnosis have been completed (also rapidly within an audited time).

Note: The Guideline Development Group debated the meaning of the word "rapidly." In this context, it is taken to mean that the exact time will vary according to clinical need but should be, in the opinion of the development group, no longer than 6 weeks from referral to being seen by a neurologist, and a further 6 weeks until any necessary investigations are completed.

Seamless Services

- Every health commissioning organisation should ensure that all organisations in a local health area agree and publish protocols for sharing and transferring responsibility for and information about people with MS, so as to make the service seamless from the individual's perspective.

A Responsive Service

- All services and service personnel within the health care sector should recognise -- and respond to -- the varying and unique needs and expectations

of each person with MS. The person with MS should be involved actively in all decisions and actions.

Sensitive but Thorough Problem Assessment

- Health service professionals in regular contact with people with MS should consider in a systematic way whether the person with MS has a "hidden" problem contributing to their clinical situation, such as fatigue, depression, cognitive impairment, impaired sexual function, or reduced bladder control.

Self-referral after Discharge

- Every person with MS who has been seen by a specialist neurological or neurological rehabilitation service should be informed about how to make contact with the service when he or she is no longer under regular treatment or review. The individual should be given guidance on when such contact is appropriate.

IMPLEMENTATION TOOLS

Clinical Algorithm
Patient Resources

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

National Collaborating Centre for Chronic Conditions. Multiple sclerosis. National clinical guideline for diagnosis and management in primary and secondary care. London (UK): National Institute for Clinical Excellence (NICE); 2004. 197 p. [468 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2004

GUIDELINE DEVELOPER(S)

National Collaborating Centre for Chronic Conditions - National Government Agency [Non-U.S.]

SOURCE(S) OF FUNDING

National Institute for Clinical Excellence (NICE)

GUIDELINE COMMITTEE

Guideline Development Group

Consensus Reference Group

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

All group members made a formal "declaration of interests" at the start and provided updates during the development. The National Collaborating Center for Chronic Conditions (NCC-CC) and the group leader monitored these.

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format [PDF] format from the National Institute for Clinical Excellence (NICE) Web site.

Also available from the National Collaborating Center for Chronic Conditions (NCC-CC) Web site.

Print copies: Available from the National Health Service (NHS) Response Line 0870 1555 455, ref: N0366. 11 Strand, London, WC2N 5HR.

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- National Collaborating Centre for Chronic Conditions. Multiple sclerosis. Management of multiple sclerosis in primary and secondary care. London (UK): National Institute for Clinical Excellence (NICE); 2003 Nov. 64 p. (Clinical guideline; no. 8).

Electronic copies: Available in Portable Document Format [PDF] format from the National Institute for Clinical Excellence (NICE) Web site.

PATIENT RESOURCES

The following is available:

- Multiple sclerosis: Understanding NICE guidance – information for people with multiple sclerosis, their families and carers, and the public. National Institute for Clinical Excellence (NICE), 2003 Nov. 62 p.

Electronic copies: Available from the National Institute for Clinical Excellence (NICE) Web site.

Print copies: Available from the National Health Service (NHS) Response Line 0870 1555 455, ref: N0368. 11 Strand, London, WC2N 5HR.

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC STATUS

This NGC summary was completed by ECRI on July 12, 2004. The information was verified by the guideline developer on November 29, 2004. This summary was updated by ECRI on May 27, 2005, following the U.S. Food and Drug Administration (FDA) advisory on Novantrone (mitoxantrone for injection concentrate). This summary was updated by ECRI on July 15, 2005 following the FDA advisory on Cialis, Levitra, and Viagra.

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